

~~SECRET~~~~CONFIDENTIAL~~

2 May 1957

MEMORANDUM FOR: THE RECORD

SUBJECT : Visit to [redacted]

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1. Time and Place of Meeting: The meeting was held at [redacted]
 [redacted] on 24 April 1957.

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2. Attendance: [redacted]

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3. Discussion: Ad Hoc 25 - Wall Thickness measurement.

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[redacted] has studied the dampening problem and the problem of reducing or eliminating the shear wave, which is causing hash on the reflected signal. A shear wave is useful for finding cracks or fissures but is not useful for thickness measurements. In tests, [redacted] has found that the shear wave is almost of the same magnitude as the compression wave and that it has been dampening out the reflected wave. One way of eliminating the shear wave is to get as short a signal as possible. [redacted] would like to obtain a pulse of less than 50 microseconds, but so far have not been able to obtain it.

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Tests on 12" blocks revealed that the signal received through it was much stronger than necessary to obtain a good reflected signal. [redacted] then reduced the 700 volt pulse. They were using and have now found that from a 50 volt pulse, a signal on the order of several milivolts is received.

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[redacted] first approached the dampening problem by the use of fluids. The crystal transducers were placed in glycerin filled plastic cases, but this method was not satisfactory. [redacted] is now trying the use of two crystals. One crystal is placed on top of the other. Both crystals are tuned to the same frequency. The top crystal is used to dampen and absorb energy. [redacted] first tried shorting the top crystal, but later found that by matching the

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impedance (50 ohms) better mechanical dampening and energy absorption was obtained. This method appears to one answer to the dampening problem.

[redacted] feels after a search of available literature, that they done better on data ~~interpolation~~ than the commercial field has. However, it was pointed out to them that the commercial fields main interest has been in strains and fissures and not on accurate measurements.

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In summary, [redacted] has devoted its main effort on the dampening problem. Smaller and thinner crystals with a higher frequency are being obtained. [redacted] will load them to lower their frequency and see if this will help control dampening. [redacted] feels that they must isolate the shear wave before more work is put in on geometric transducer design.

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[redacted] stated that they might have to design a negative resistance amplifier. They have looked at the ones available on the commercial market and so far have found none that is suitable. [redacted] in the next period will continue work on dampening and conduct tests using probe transducers.

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Distribution:

- Orig. - Ad Hoc 25
- 1 - AWS
- 1 - Chrono

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